

WHAT IS CLAIMED IS:

1                   1. An auxiliary oil filter for a vehicle having an engine  
2 lubrication system, the auxiliary oil filter comprising:

3                   a housing having an inlet port for receiving engine oil separately from  
4 the engine lubrication system, and an outlet port for returning filtered oil to the  
5 engine, the housing defining an inlet cavity in fluid communication with the inlet  
6 port, and an outlet cavity in fluid communication with the outlet port;

7                   a seal disposed within the housing for sealing engine oil substantially  
8 within the inlet and outlet cavities;

9                   a media supply reel disposed within the housing and having a roll of  
10 filtering media thereon;

11                  a take-up reel disposed within the housing and configured to receive  
12 the filtering media from the supply reel; and

13                  a media indexing system operative to rotate the take-up reel to receive  
14 used filtering media.

1                   2. The auxiliary oil filter of claim 1, wherein the seal is a lip seal  
2 disposed at least partially within the inlet cavity and configured to engage the  
3 filtering media.

1                   3. The auxiliary oil filter of claim 1, wherein the seal is an  
2 inflatable seal, configured to be inflated by engine oil.

1                   4. The auxiliary oil filter of claim 1, further comprising a  
2 processor for at least controlling the media indexing system and the flow of engine  
3 oil into the auxiliary oil filter.

1                   5.       The auxiliary oil filter of claim 4, further comprising a  
2       pressure sensor for monitoring the oil pressure in the inlet cavity and the outlet  
3       cavity, and for signaling the processor.

1                   6.       An oil filtration system for an engine, comprising:  
2                   an auxiliary oil filter for receiving and filtering oil from the engine,  
3       the auxiliary oil filter including,  
4                   a) a housing having an inlet port for receiving engine oil, and an  
5       outlet port for returning filtered oil to the engine,  
6                   b) a media supply reel disposed within the housing and having a roll  
7       of filtering media thereon,  
8                   c) a take-up reel disposed within the housing and configured to  
9       receive the filtering media from the supply reel, and  
10                  d) a media indexing system disposed within the housing and operative  
11       to rotate the take-up reel to receive used filtering media.

1                   7.       The oil filtration system of claim 6, wherein the auxiliary oil  
2       filter further includes a removable media cartridge disposed within the housing and  
3       containing at least the media supply reel and the take-up reel.

1                   8.       The oil filtration system of claim 6, wherein the auxiliary oil  
2       filter further includes a tensioning apparatus disposed within the housing, and  
3       operatively connected to the media supply reel for maintaining tension on the  
4       filtering media.

1                   9.       The oil filtration system of claim 6, wherein the auxiliary oil  
2       filter further includes a filter media support disposed within the housing for  
3       supporting the filtering media as engine oil is filtered.

1                   10.    The oil filtration system of claim 6, further comprising an  
2    electrostatic agglomeration system operatively associated with the filtering media to  
3    enhance the collection of small contaminants on the filtering media.

1                   11.    The oil filtration system of claim 6, further comprising an  
2    additive replenishment system operatively associated with the auxiliary oil filter to  
3    release additives into the oil.

1                   12.    The oil filtration system of claim 6, further comprising a  
2    sensor for sensing the quality and the level of the oil in the engine.

1                   13.    The oil filtration system of claim 6, further comprising an oil  
2    cooler operatively connected between the auxiliary oil filter and the engine.

1                   14.    The oil filtration system of claim 6, further comprising an  
2    auxiliary pump operatively connected between the engine and the auxiliary oil filter  
3    for pumping oil from the engine to the auxiliary oil filter.

1                   15.    The oil filtration system of claim 14, further comprising an  
2    oil cooler operatively connected between the pump and the engine.

1                   16.    The oil filtration system of claim 14, further comprising a  
2    subsystem for remote filling and draining for oil replacement.

1                   17.    The oil filtration system of claim 16, wherein the subsystem  
2    includes a first directional control valve operatively connected between the engine  
3    and the pump for remote oil filling and a second directional control valve  
4    operatively connected between the pump and the auxiliary filter for oil draining.

1                   18. An oil filtration system for an engine, comprising:  
2                   an auxiliary oil filter for receiving and filtering oil from the engine,  
3                   the auxiliary oil filter including,  
4                   a) a housing having an inlet port for receiving engine oil, and an  
5                   outlet port for returning filtered oil to the engine,  
6                   b) a media supply reel disposed within the housing and having a roll  
7                   of filtering media thereon,  
8                   c) a take-up reel disposed within the housing and configured to  
9                   receive the filtering media from the supply reel, and  
10                   d) a media indexing system operative to rotate the take-up reel to  
11                   receive used filtering media; and  
12                   a processor for at least controlling the media indexing system and the  
13                   flow of engine oil into the auxiliary oil filter.

1                   19. The oil filtration system of claim 18, further comprising an  
2                   electrostatic agglomeration system operatively associated with the filtering media to  
3                   enhance the collection of small contaminants on the filtering media.

1                   20. The oil filtration system of claim 18, further comprising an  
2                   additive replenishment system operatively associated with the auxiliary oil filter to  
3                   release additives into the oil.

1                   21. The oil filtration system of claim 18, further comprising a  
2                   sensor for sensing the quality and the level of the oil in the engine.

1                   22. The oil filtration system of claim 18, further comprising an  
2                   oil cooler operatively connected between the auxiliary oil filter and the engine.

1                   23. The oil filtration system of claim 18, further comprising an  
2 auxiliary pump operatively connected between the engine and the auxiliary oil filter  
3 for pumping oil from the engine to the auxiliary oil filter.

1                   24. The oil filtration system of claim 23, further comprising an  
2 oil cooler operatively connected between the pump and the engine.

1                   25. The oil filtration system of claim 23, further comprising a  
2 subsystem for remote filling and draining for oil replacement.

1                   26. The oil filtration system of claim 25, wherein the subsystem  
2 includes a first directional control valve operatively connected between the engine  
3 and the pump for remote oil filling and a second directional control valve  
4 operatively connected between the pump and the auxiliary filter for oil draining.